NOTICE

This is the **draft** of the chapter on Roundabout markings for the MUTCD. There will be a notice of public rulemaking beginning in 2007 where the public can comment on the draft. The comments will be considered and then final approval of the revised MUTCD is expected in the year 2010. At this time, the fishhook markings are not accepted for use within the state of Kentucky. Markings and signing for highway projects on the state maintained system must still receive approval from the appropriate KYTC staff.

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Markings Technical Committee
Chapter 3H: Roundabout Markings
APPROVED IN NCUTCD GENERAL SESSION ON JANUARY 20, 2006

Roundabouts are becoming an increasingly utilized form of intersection design and control. To address the need for improved guidelines for marking roundabouts, the Markings Technical Committee has developed a new chapter, Roundabout Markings, for Part 3. The new chapter includes proposed text and figures that should be useful to practitioners designing pavement markings at single- and multi-lane roundabouts. Examples are provided to illustrate possible ways to implement the standards, guidance, and options within the chapter; these do not represent every situation to be encountered in practice but instead show a variety of situations that may be encountered. The chapter has references to signing and traffic signals, but the MUTCD additions for those Parts and for work zones will be submitted for review at a later time. As with all areas in the MUTCD, the new material illustrates various conceptual geometric configurations for roundabouts without being specific on roadway design issues.

All of the following is new text and figures. Because it is all new, the text is not underlined. The new chapter replaces sections 3B.24 and 3B.25 and Figures 3B-27 and 3B-28. These sections and figures are provided at the end of the proposed chapter with strikethroughs.

The MTC sent proposed language to sponsors prior to the January 2005 meeting. The comments received from sponsors were considered by the Markings Technical Committeee at the January 2005 meeting and a number of revisions were made to the sponsor ballot language. The revised ballot was presented to the Council at the January 2006 meeting in conjunction with the roundabout proposals for RW and GMI signs. The following represents the language as approved in the General Session.

TABLE OF CONTENTS FOR CHAPTER 3H, ROUNDABOUT MARKINGS

LIST OF FIGURES

CHANGES NEEDED IN OTHER SECTIONS OF PART 3 TO SUPPORT THE ROUNDABOUT MARKINGS CHAPTER:

- Change Section 3B.16 to make reference to Section 3H.04 instead of 3B.24.
- Sections 3B.24 and 3B.25 will be removed. Sections 3B.26 and 3B.27 will need to be renumbered. Existing Figures 3B-27 and 3B-28 will be removed and succeeding figures will need to be renumbered.

Chapter 3H. Roundabout Markings

Section 3H.01 General

Standard:

Roundabouts are circular intersections that shall meet the following characteristics:

1. **Yield at entry which gives a vehicle on the circulatory roadway the right-of-way; and**
2. **Deflection of the approaching vehicle counter-clockwise around the central island.**

Signing and pavement markings at roundabouts shall present a consistent message to the road user.

Guidance:

Pavement markings and signing for roundabouts should be integral to the design of roundabouts.

Markings at roundabouts should facilitate the movement through the roundabout without requiring vehicles to change lanes within the circulatory roadway

Markings on roundabout approaches should be compatible with circulatory roadway markings to provide a consistent message to road users at roundabouts.

Option:

Traffic control signals may be used at roundabouts to facilitate the crossing of pedestrians in crosswalks or to allow metering of traffic.

Support:

A specific marking pattern can have different operational performance (e.g., lane utilization, capacity, delay, and queues) under different traffic conditions. For example, a marking pattern that is optimal for morning peak hour conditions may be suboptimal for evening peak hour conditions.

Design requirements for traffic control signals can be found in Part 4.

Section 3H.02 White Lane Line Pavement Markings for Roundabouts

Standard:

Continuous concentric lane lines shall not be used within the circulatory roadway of roundabouts.

Multi-lane approaches at roundabouts shall have lane lines.

Bicycle lane markings shall not be provided on the circulatory roadway of roundabouts.

Guidance:

Multi-lane roundabouts should have lane line markings within the circulatory roadway to channelize traffic to the appropriate exit lane.

Bicycle lane markings should stop at least 30 m (100 ft) before the crosswalk, or if no crosswalk is provided, at least 30 m (100 ft) before the yield line, or if no yield line is provided, then at least 30 m (100 ft) before the limit of the circulatory roadway. See Chapter 9C for details on bicycle lane termination.

Section 3H.03 Edge Line Pavement Markings for Roundabouts

Guidance:

A white edge line should be used on the outer (right) side of the circulatory roadway.

If a white edge line is used, it should be as follows (see Figure 3H-01):

A. A solid line adjacent to the splitter island, and
B. A wide dotted line across the lane(s) entering the roundabout.

Standard:

Edge line extensions shall not be placed across the exits from the circulatory roadway of roundabouts.

Option:

A yellow edge line may be placed around the inner (left) edge of the circulatory roadway (see Figure 3H-01) and may be used to channelize traffic (see Figure 3H-07).

Section 3H.04 Yield Lines for Roundabouts

Option:

A yield line (see Section 3B.16) may be used to indicate the point behind which vehicles are required to yield at the entrance to roundabouts (see Figure 3H-01).

Section 3H.05 Crosswalk Markings at Roundabouts

Standard:

Pedestrian crosswalks shall not be marked to the central island of roundabouts.

Guidance:

If pedestrian facilities are provided, crosswalks should be marked across roundabout entrances and exits to indicate where pedestrians are intended to cross.

Crosswalk markings at roundabouts should comply with Section 3B.17.

Crosswalks should be a minimum of 6.1 m (20 ft) from the edge of the circulatory roadway. Figure 3H-02 illustrates potential layouts and markings for crosswalks at roundabouts.

Section 3H.06 Pavement Word and Symbol Markings for Roundabouts

Guidance:

Within the circulatory roadway of multi-lane roundabouts, lane use arrows should be used.

On multi-lane approaches with double left- and/or right- turn lanes, lane use arrows should be used.

Option:

Lane use arrows may be used on any approach and within the circulatory roadway of any roundabout..

YIELD AHEAD and YIELD word or symbol pavement markings may be used on approaches to roundabouts (see Figure 3H-01).

Pavement word markings may be used on approaches or within the circulatory roadway to provide guidance information to the road user (see Figure 3H-18).

Pavement arrows on approaches to roundabouts may use one of the configurations shown in Figure 3H-03.

Section 3H.07 Example Markings for Roundabouts

Support:

Figures 3H-04 through 3H-18 illustrate examples of markings for roundabouts of various configurations.

Section 3H.08 Markings for Other Circular Intersections

Support:

Other circular intersections include but are not limited to rotaries, traffic circles, and residential traffic calming circles.

Option:

The markings shown in Chapter 3H may be used at other circular intersections when engineering judgment indicates that their presence will benefit road users.

Note: The previous version of the figures that were part of the sponsor ballot is not shown for the figures in this chapter. All of the figures were revised, some more than others. Refer to the sponsor ballot to compare the changes.

Figure 3H-01. Example of Markings for Approach and Circulatory Roadway Markings at a Roundabout

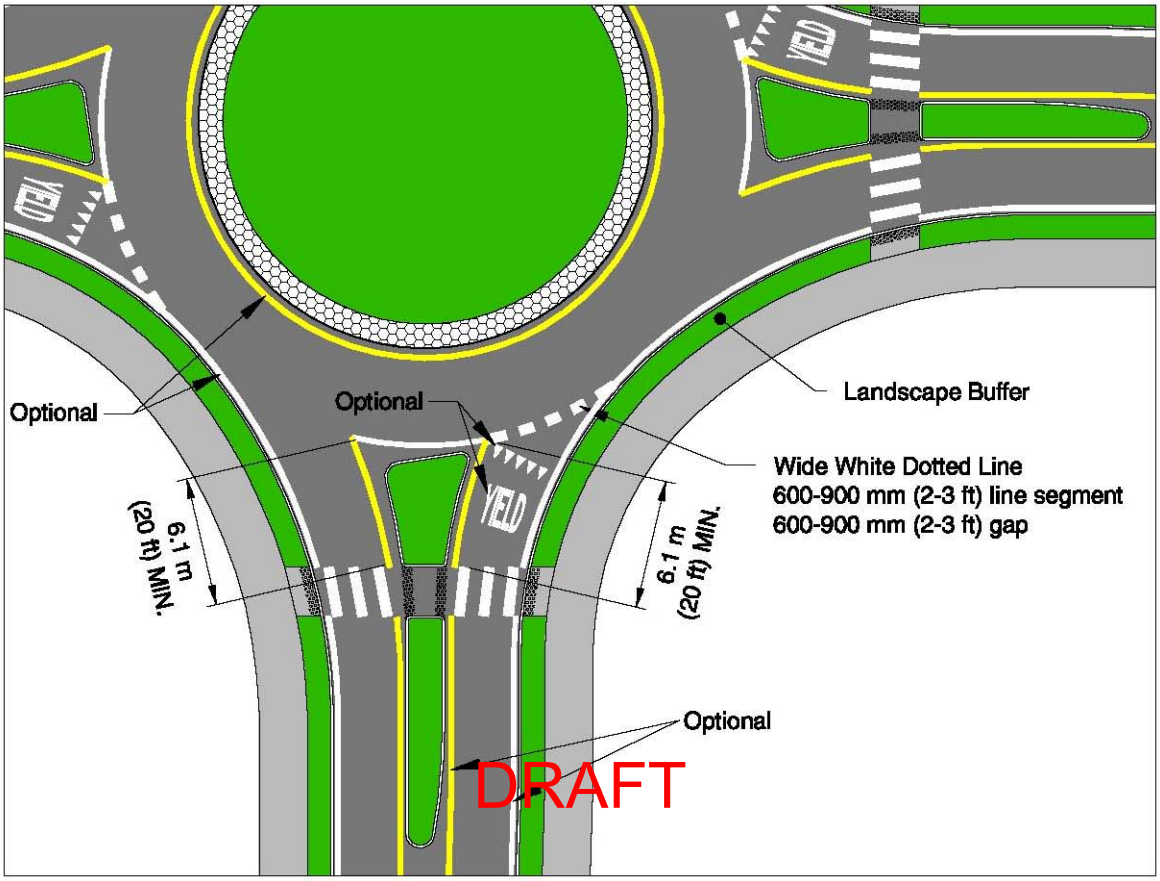
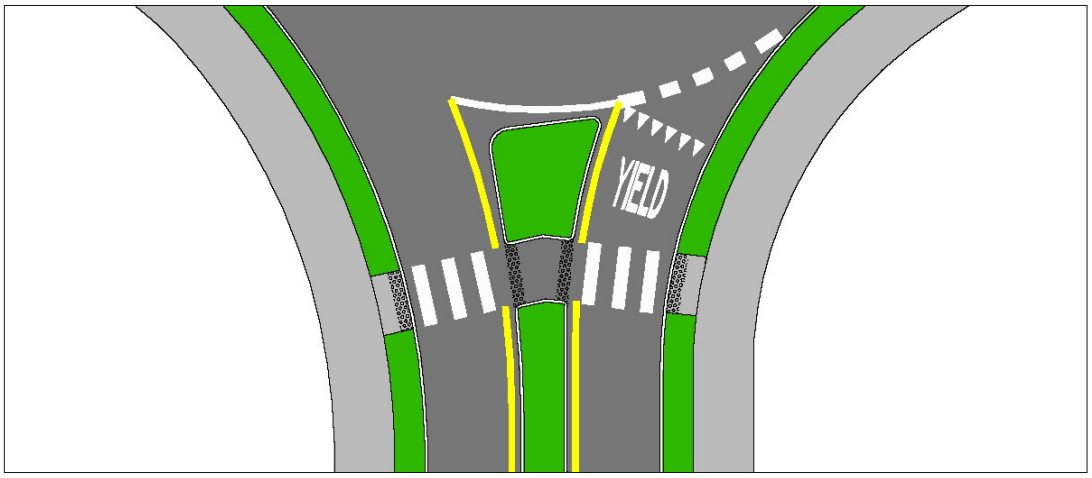
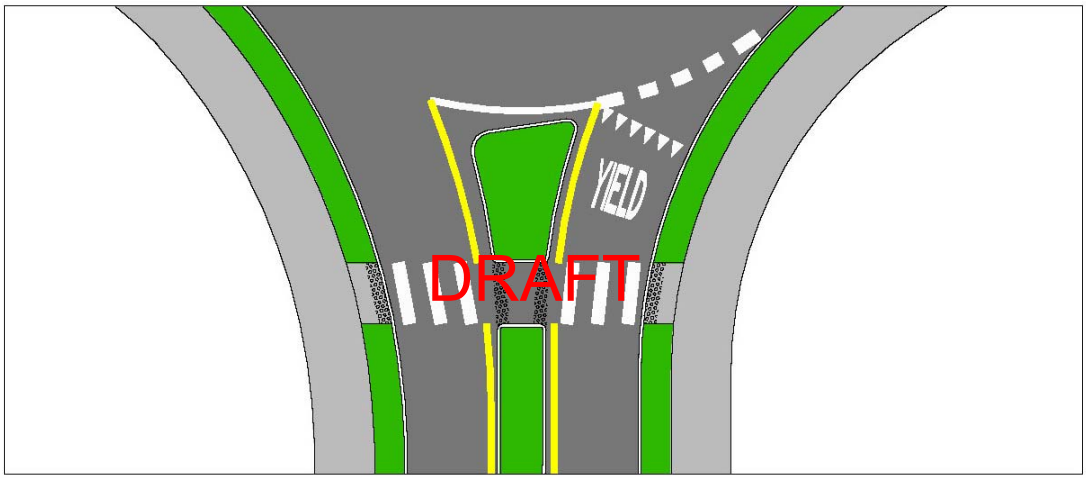


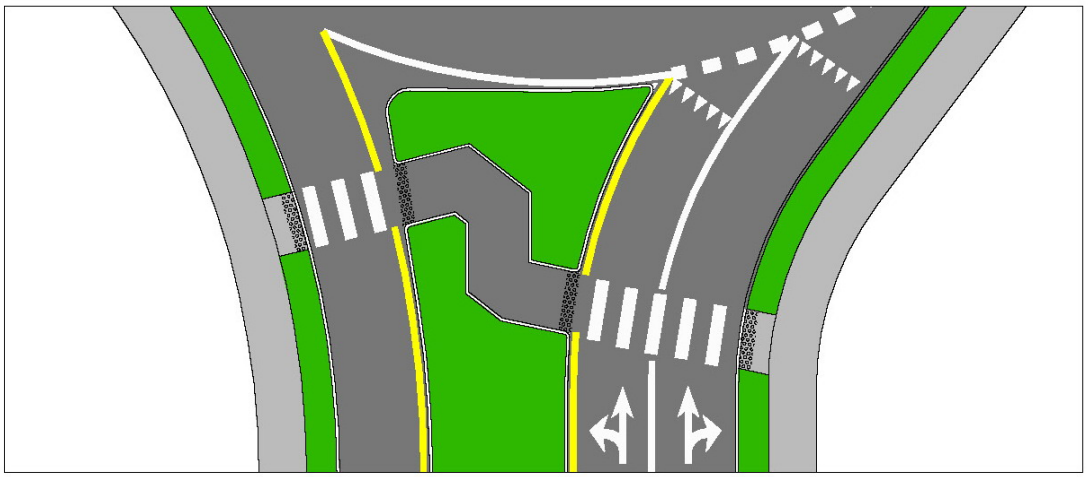
Figure 3H-02. Examples of Markings for Pedestrian Crosswalks at a Roundabout



(a) Crosswalks perpendicular to travel lanes



(b) Crosswalks perpendicular to centerline of roadway



(c) Offset crosswalks

Figure 3H-03. Pavement Arrow Options for Roundabout Approaches

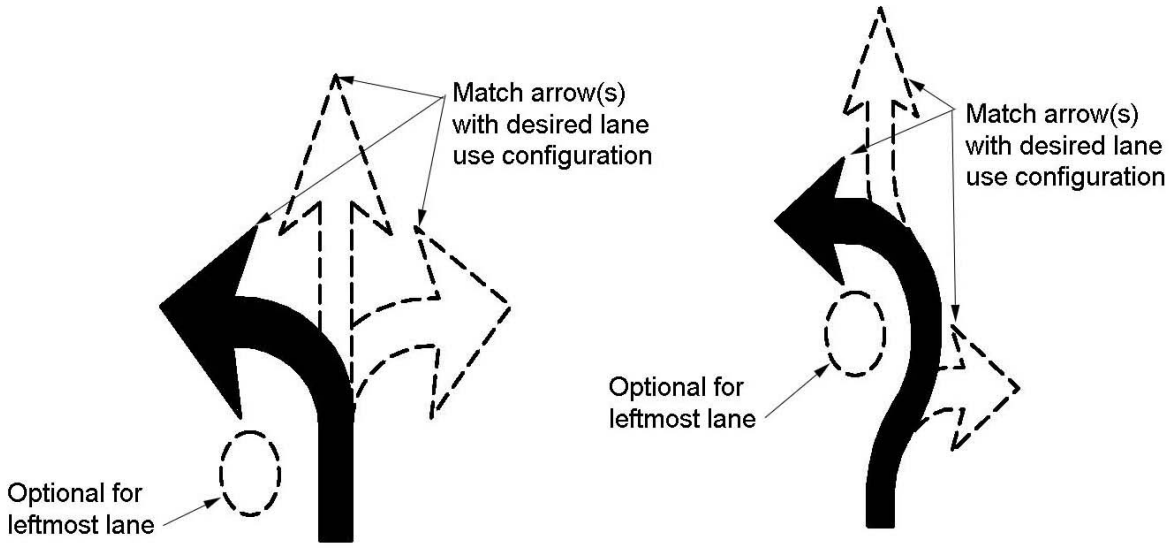


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Figure 3H-04. Example of Markings for Mini-Roundabout

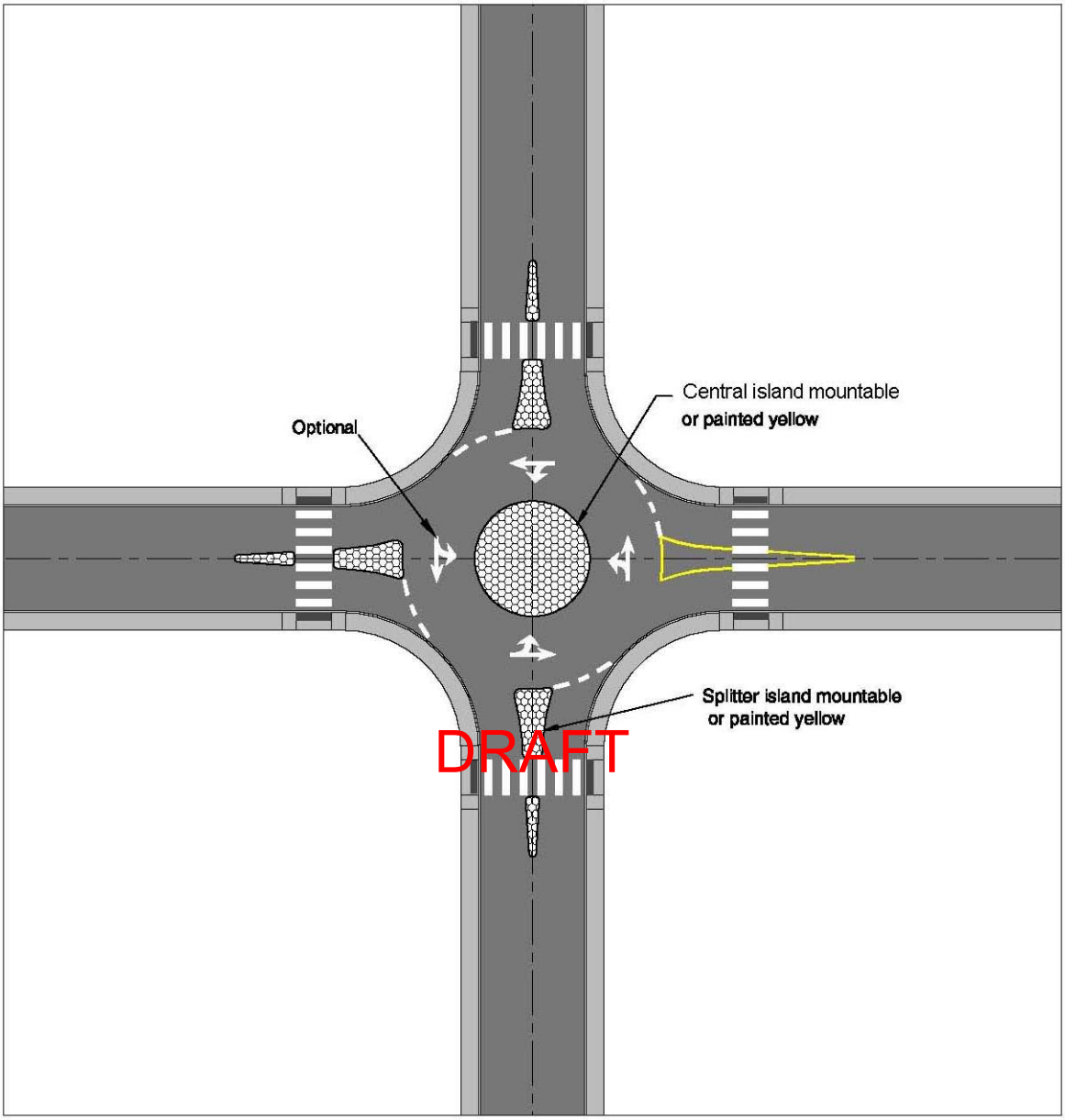

Figure 3H-05. Example of Markings for One-Lane Roundabout

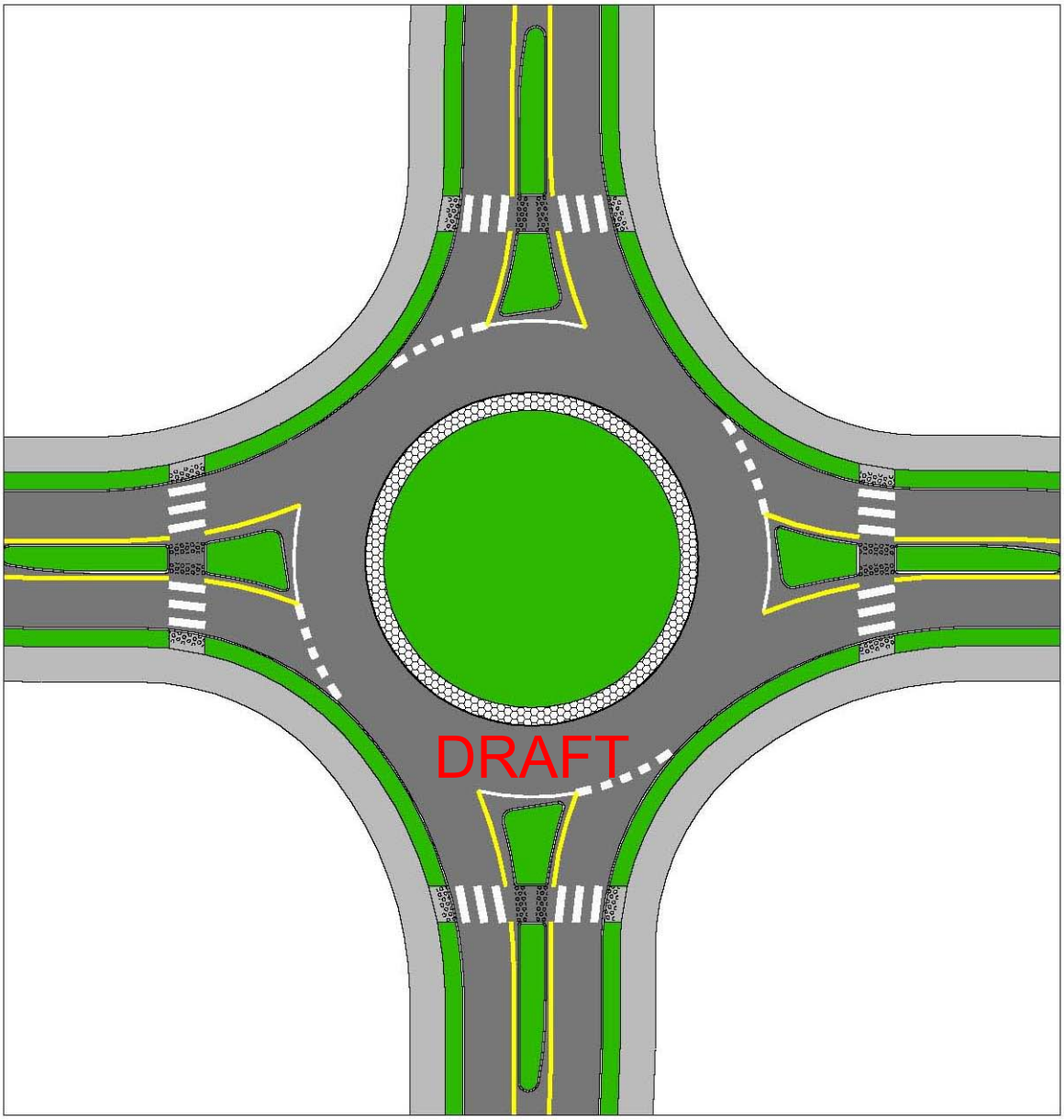

Figure 3H-06. Example of Markings for One-Lane Roundabout with Dedicated Right-Turn Lane

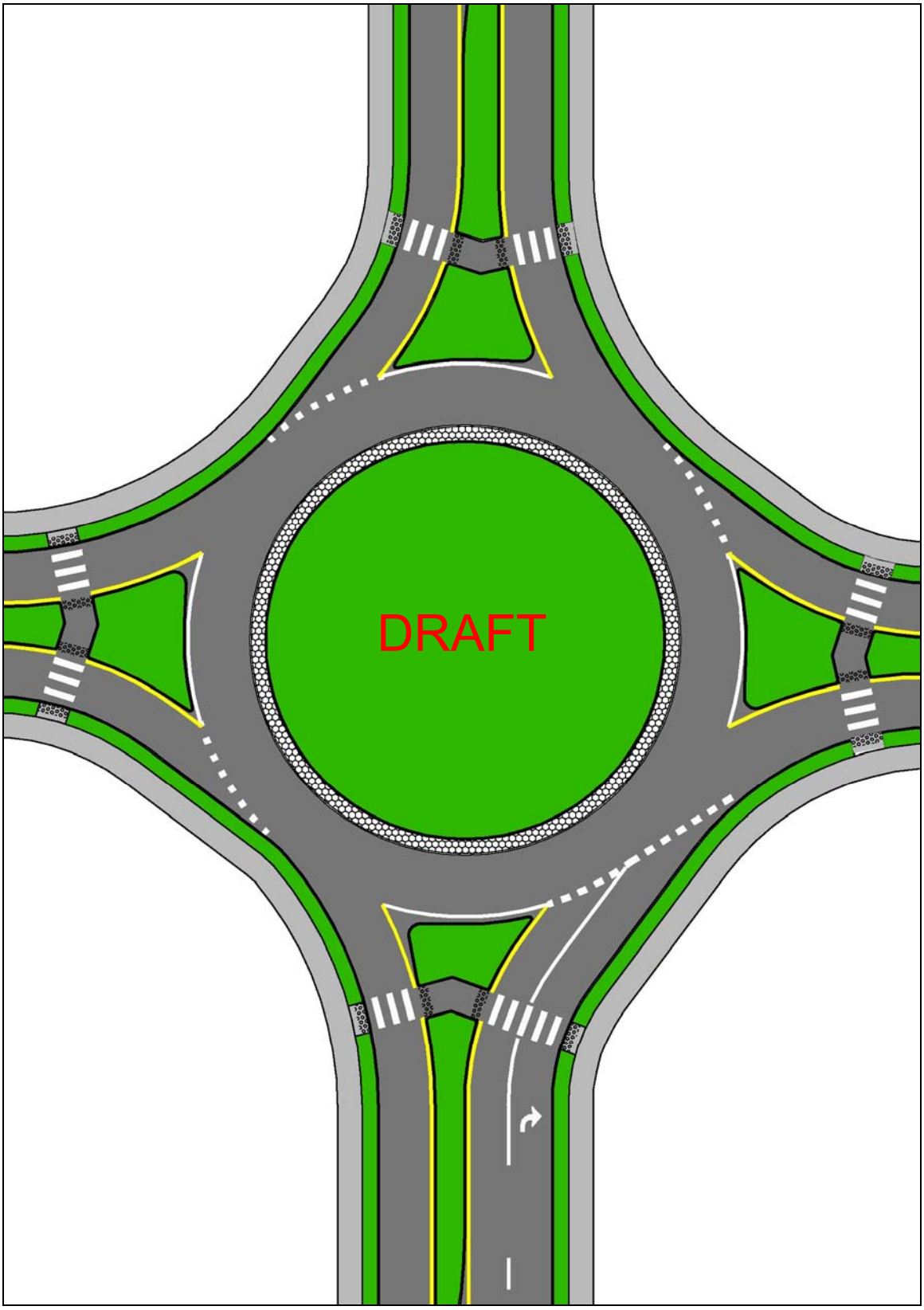

Figure 3H-07A. Example of Markings for Two-Lane Roundabout with One- and Two-Lane Approaches, Option A

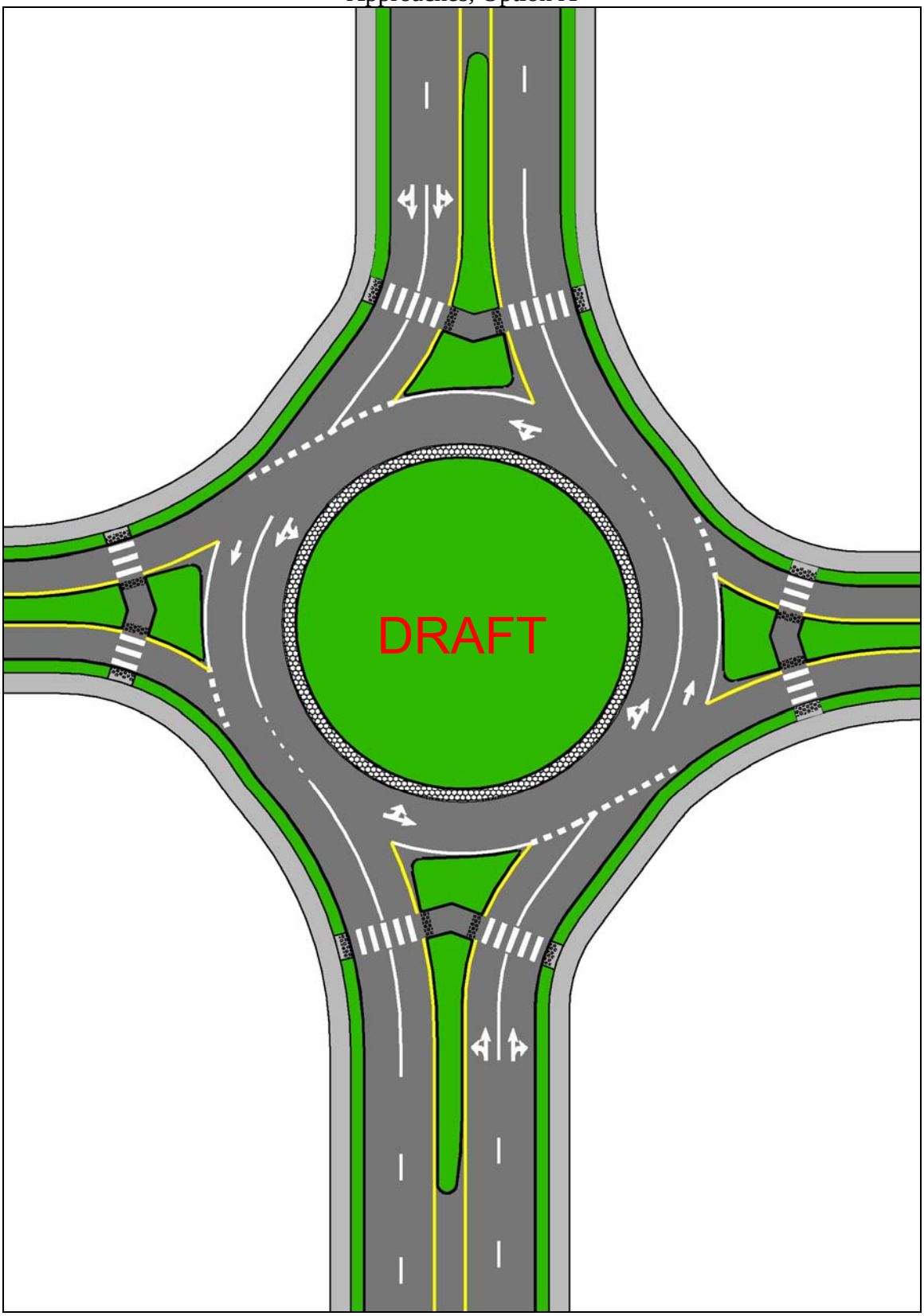

Figure 3H-07B. Example of Markings for Two-Lane Roundabout with One- and Two-Lane Approaches, Option B

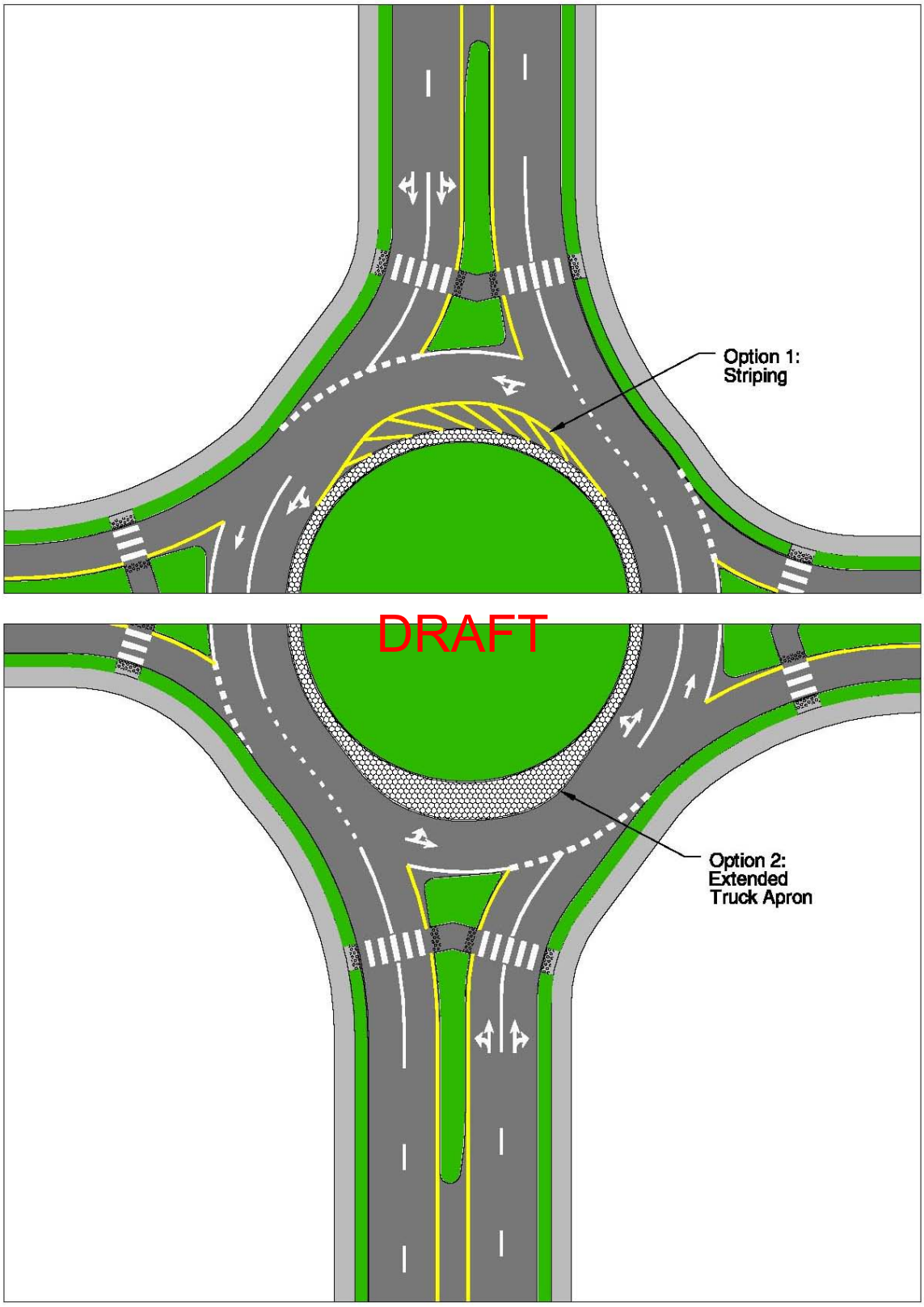

Figure 3H-08. Example of Markings for Two-Lane Roundabout with One-Lane Exits

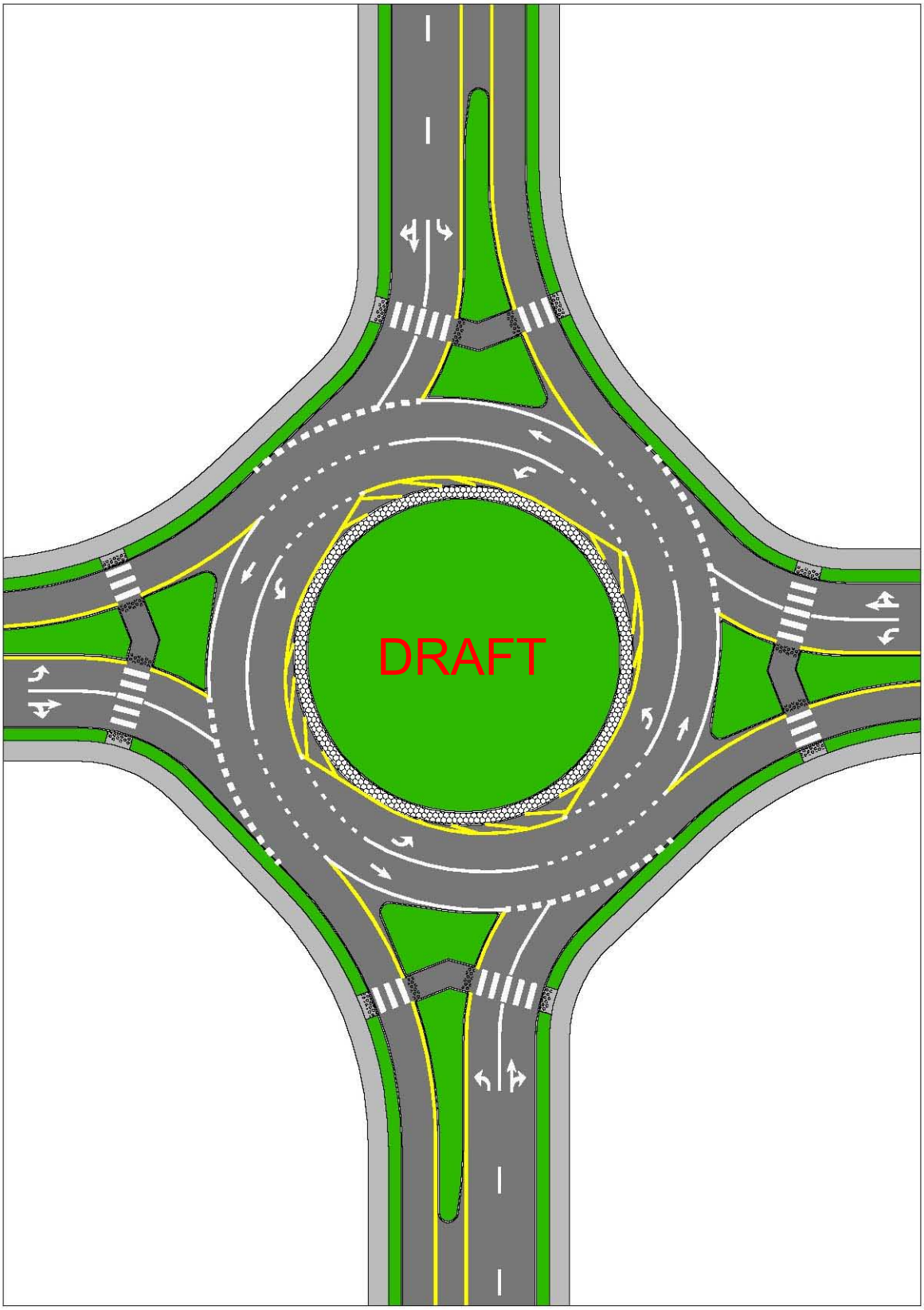

Figure 3H-09. Example of Markings for Two-Lane Roundabout

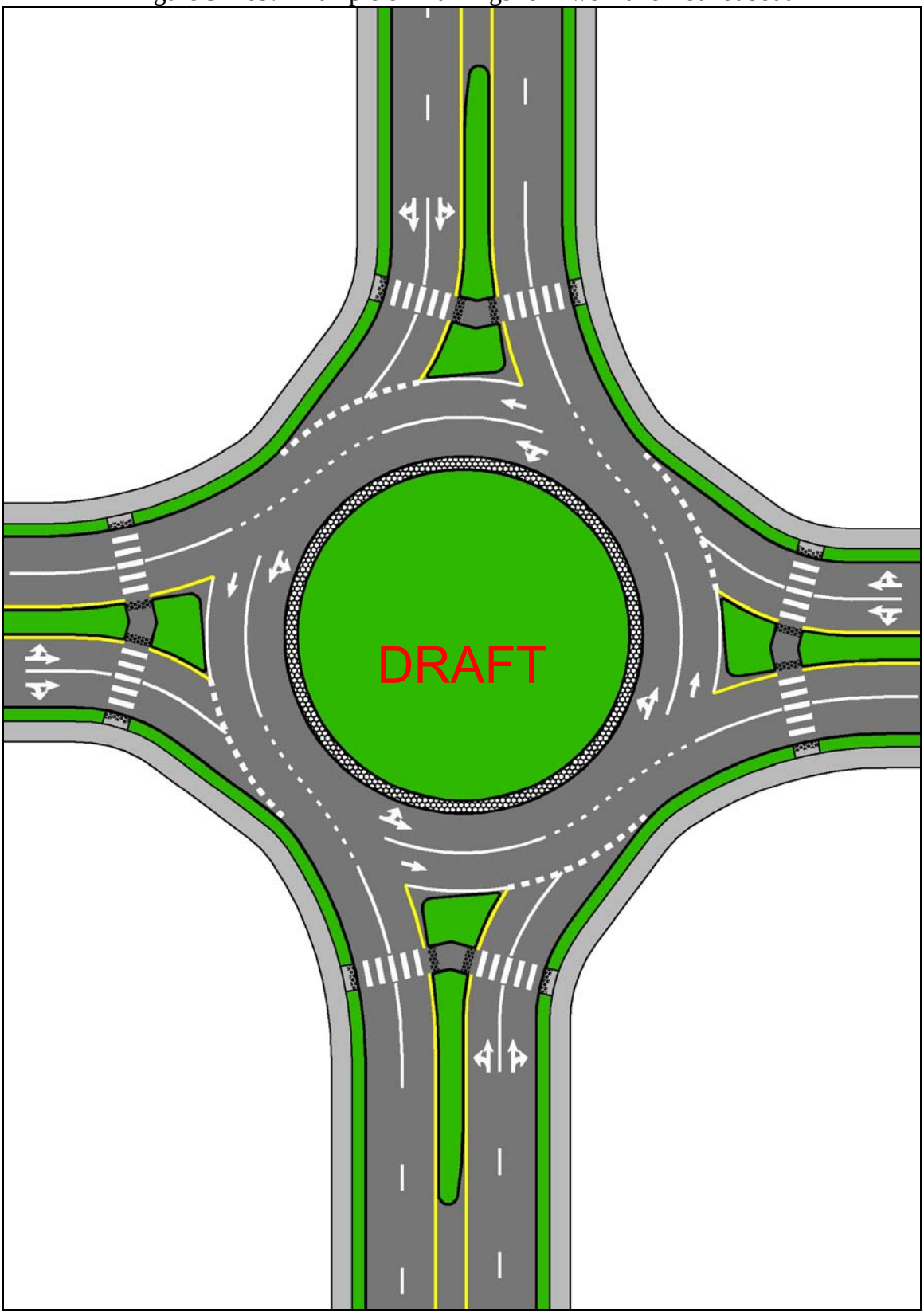

Figure 3H-10. Example of Markings for Two-Lane Roundabout with Double Left Turn

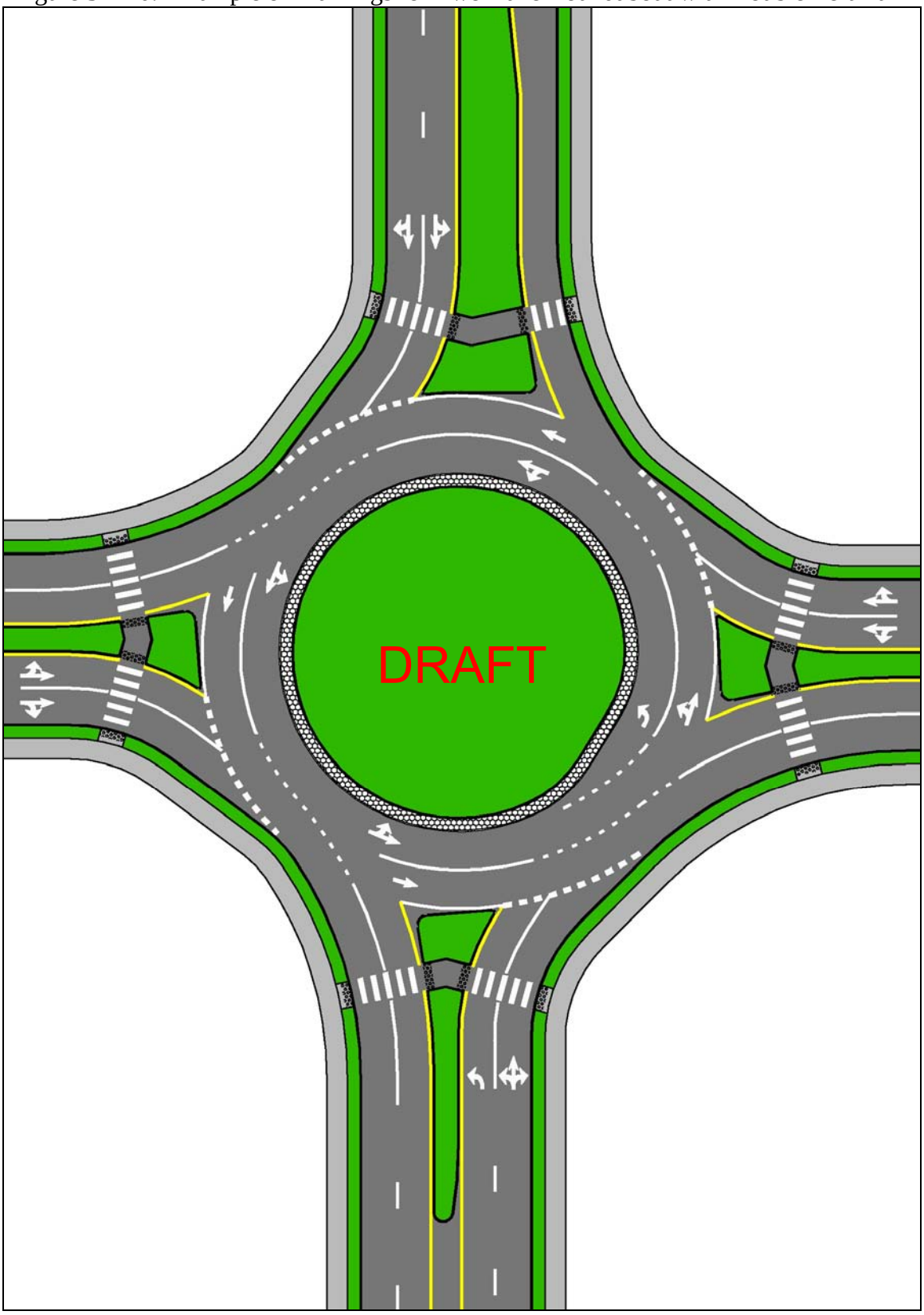

Figure 3H-11. Example of Markings for Two-Lane Roundabout with Double Right Turn

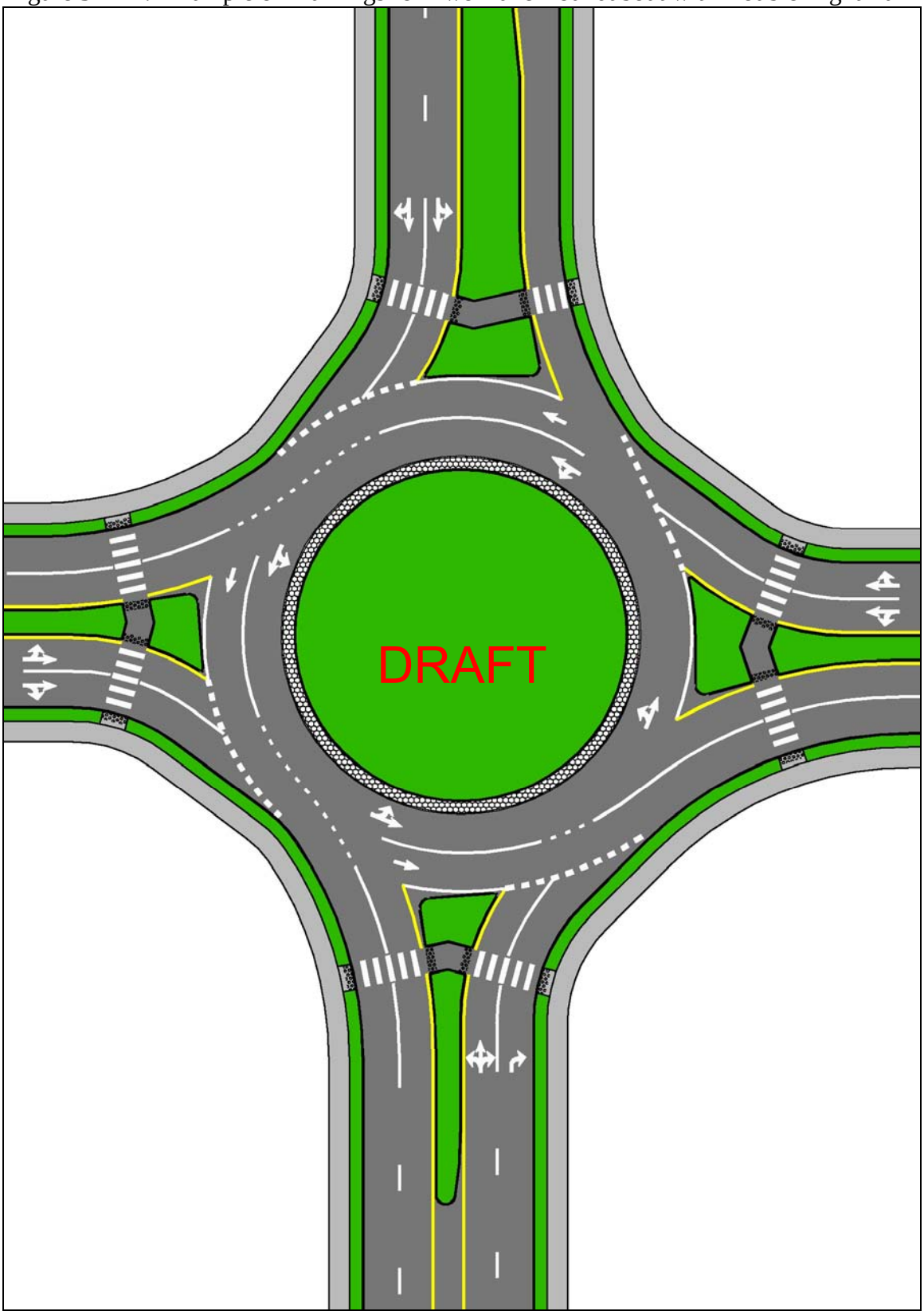

Figure 3H-12. Example of Markings for Two-Lane Roundabout with Consecutive Double Lefts

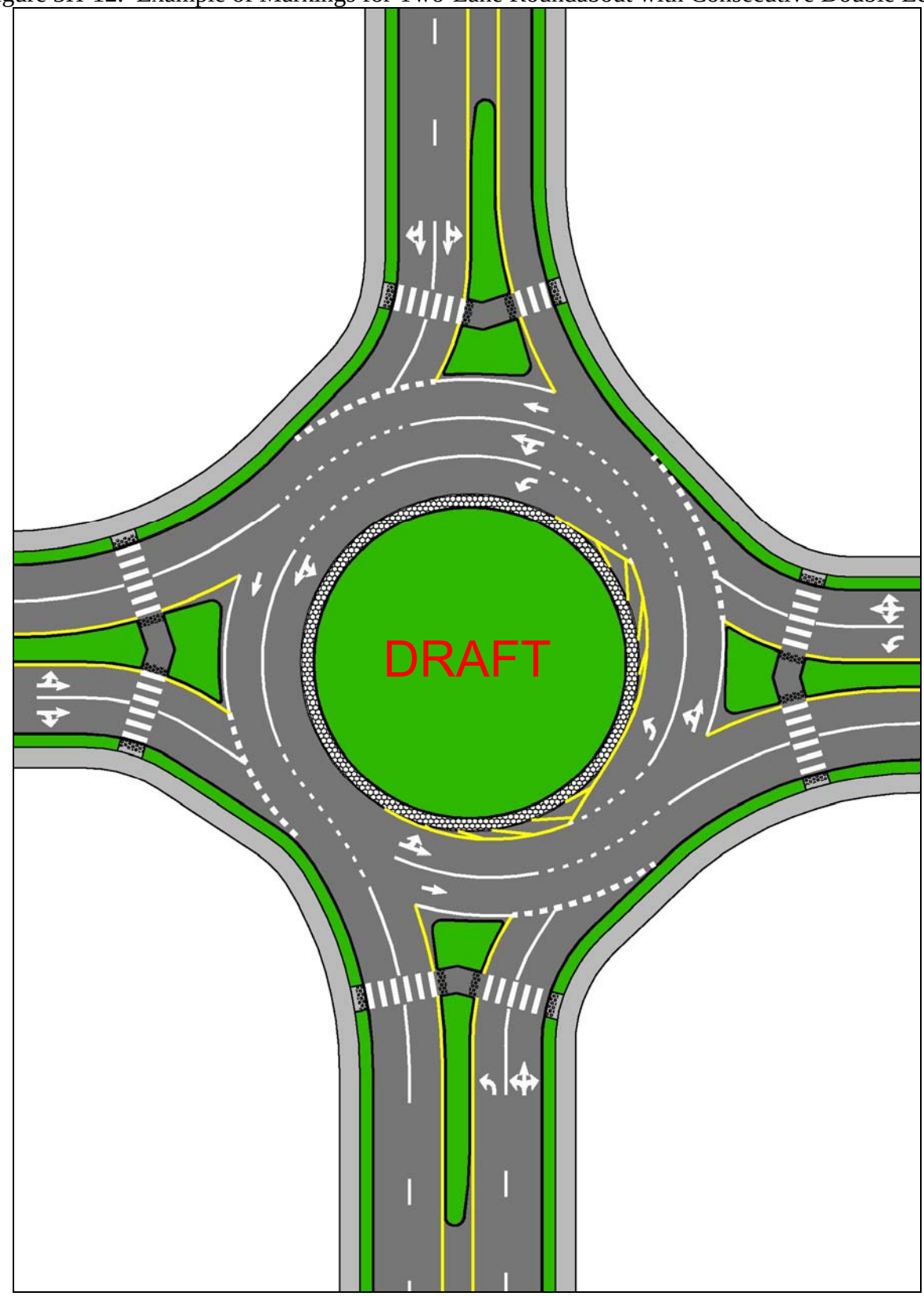

Figure 3H-13. Example of Markings for Three-Lane Roundabout with Two- and Three-Lane Approaches

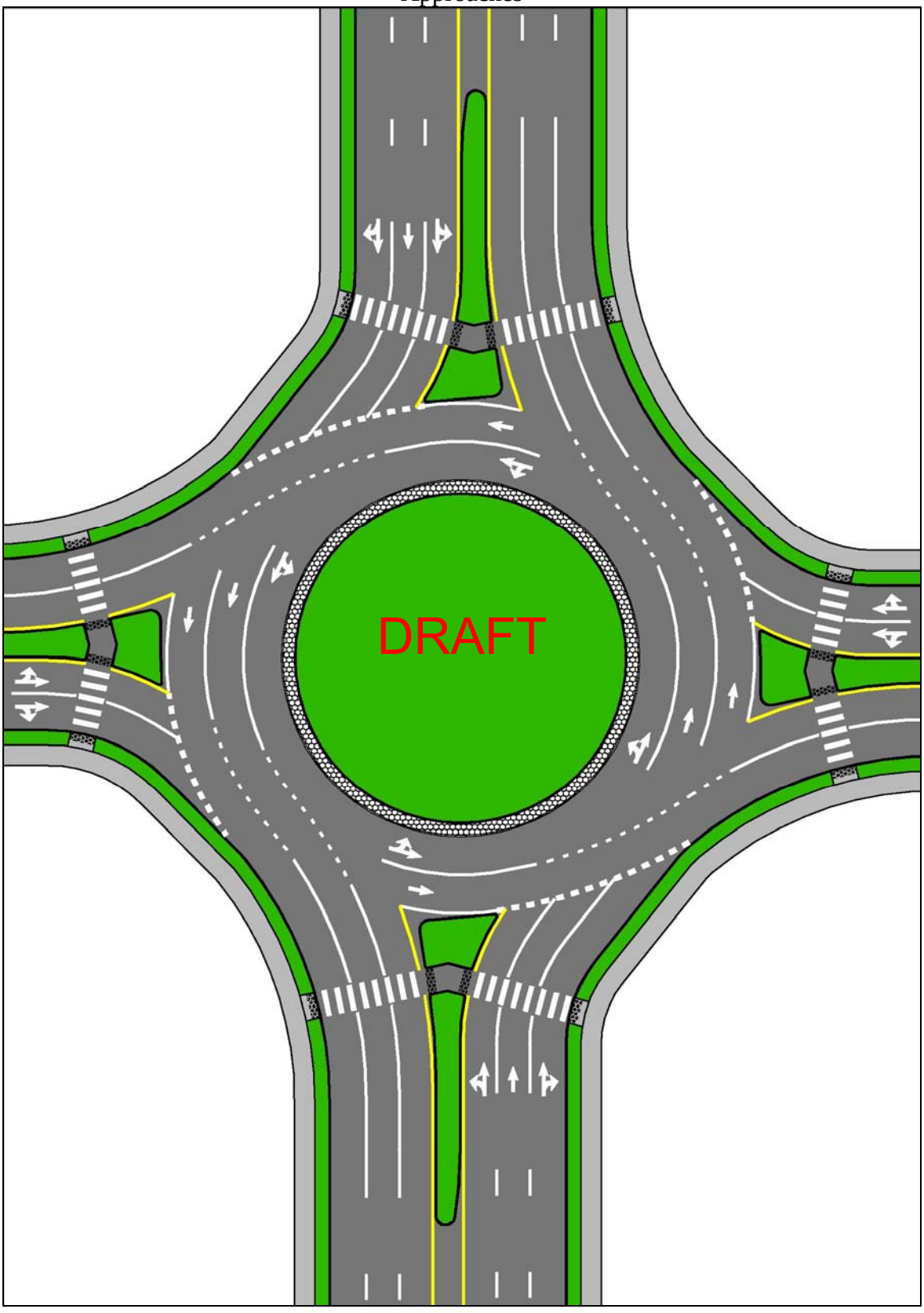

Figure 3H-14. Example of Markings for Three-Lane Roundabout with Three-Lane Approaches

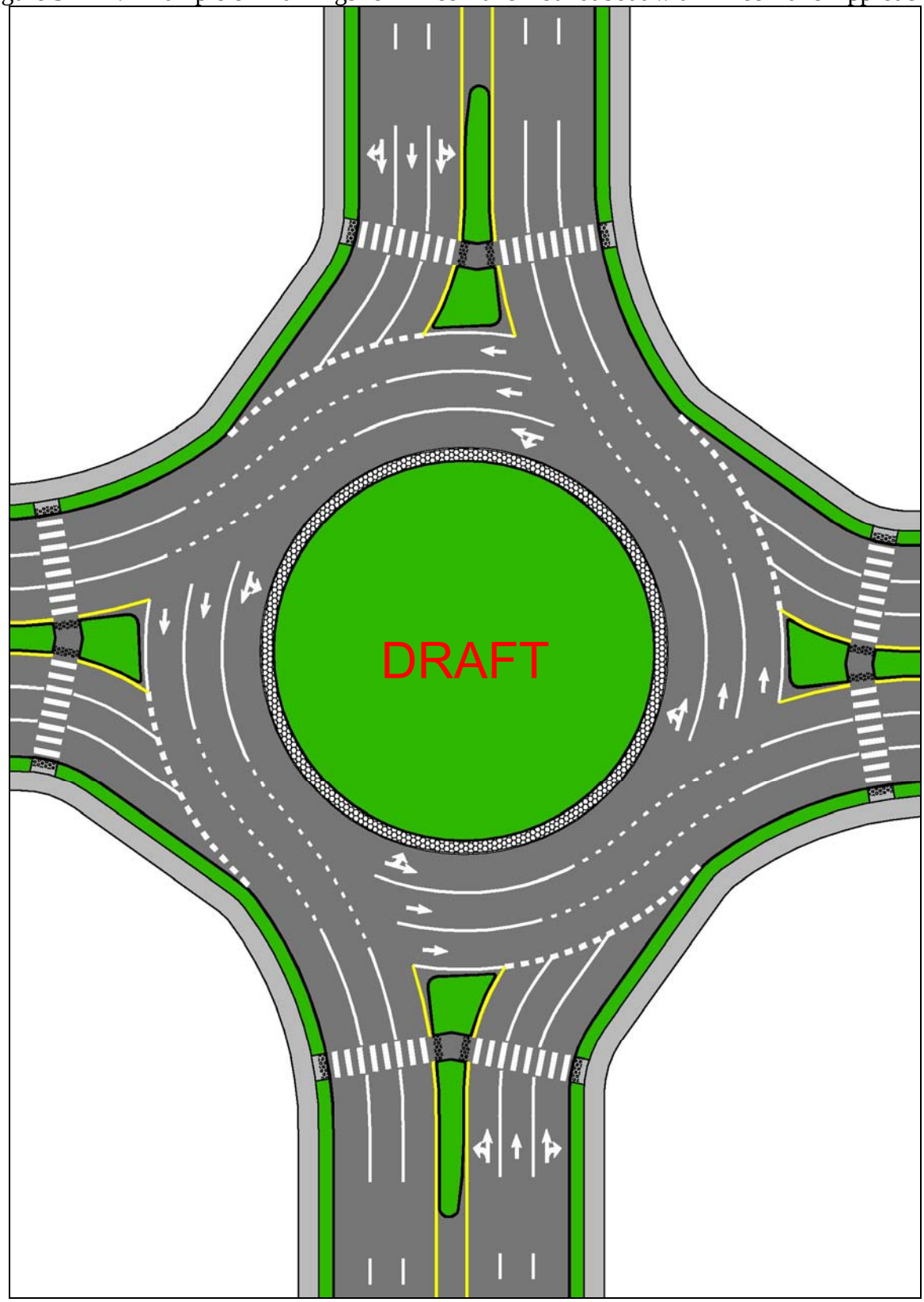

Figure 3H-15. Example of Markings for Three-Lane Roundabout with Two-Lane Exits

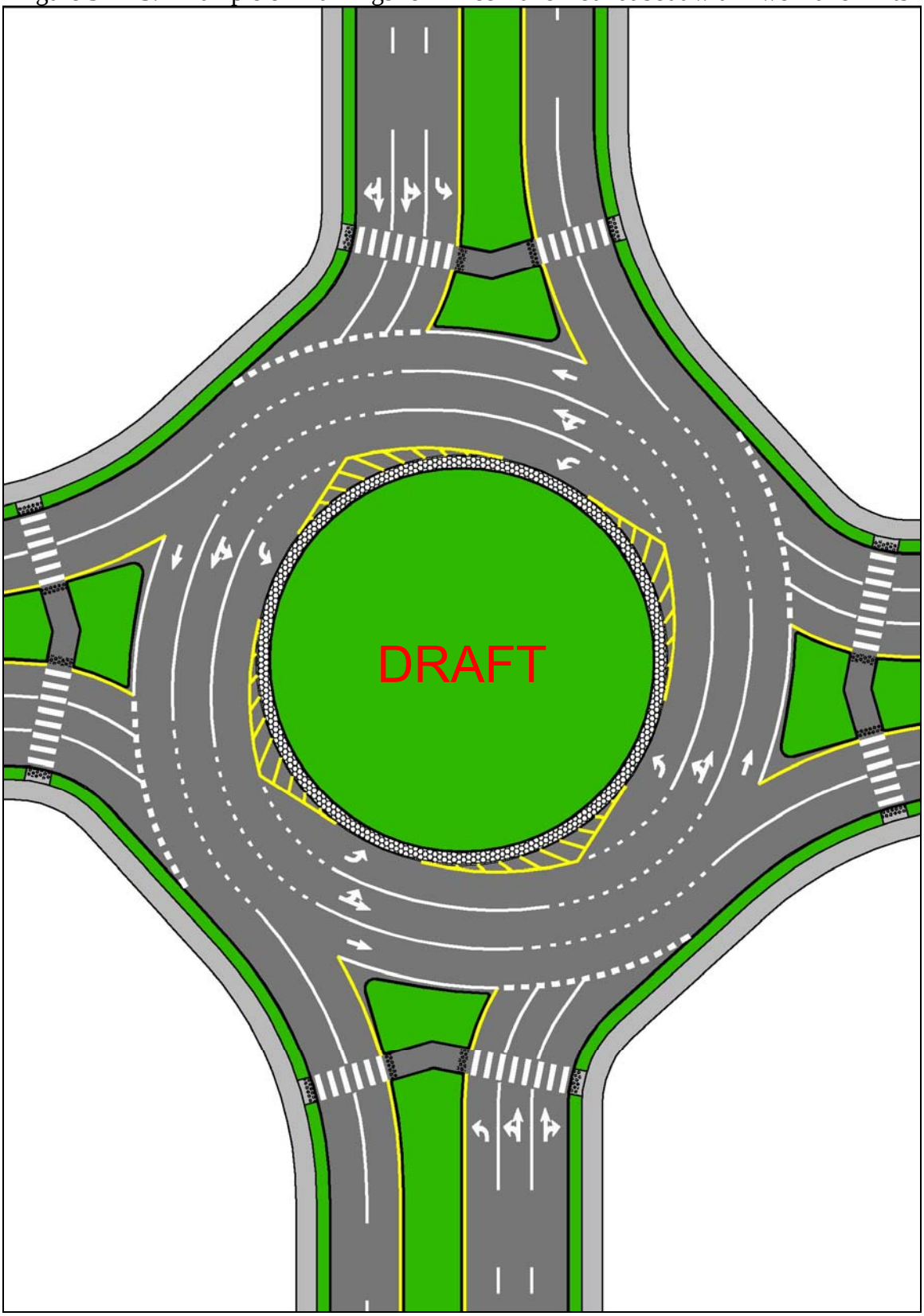

Figure 3H-16. Example of Markings for Two Linked Roundabouts

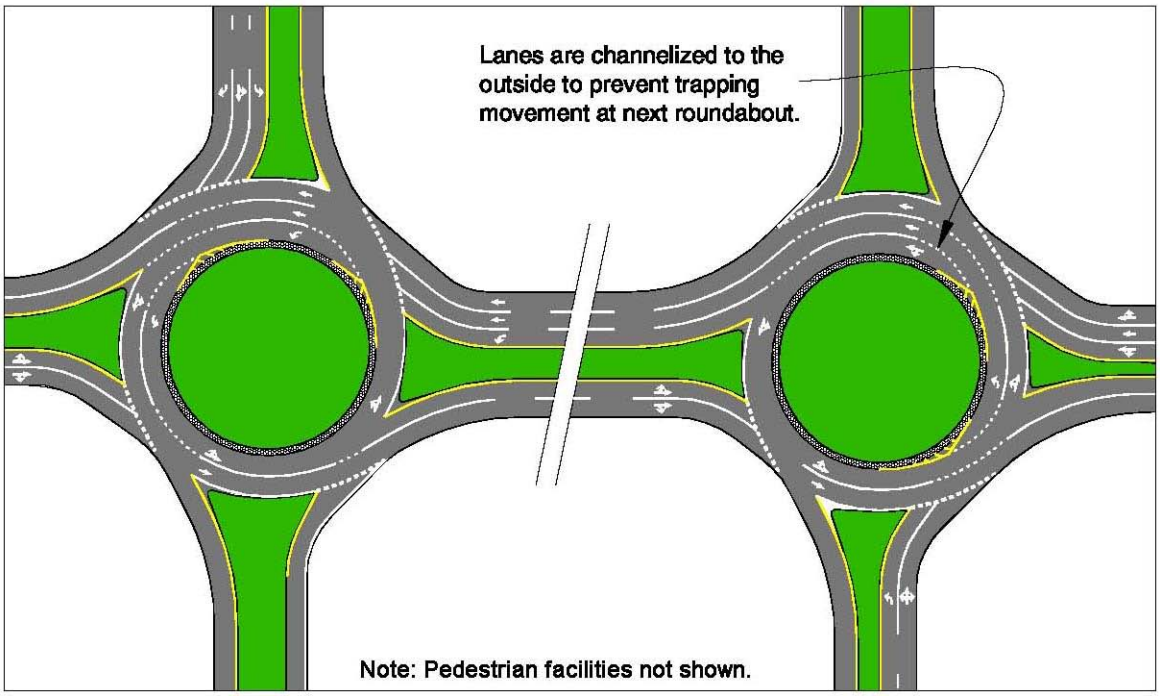

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Figure 3H-17. Example of Markings for Diamond Interchange with Two Circular-Shaped Roundabout Ramp Terminals

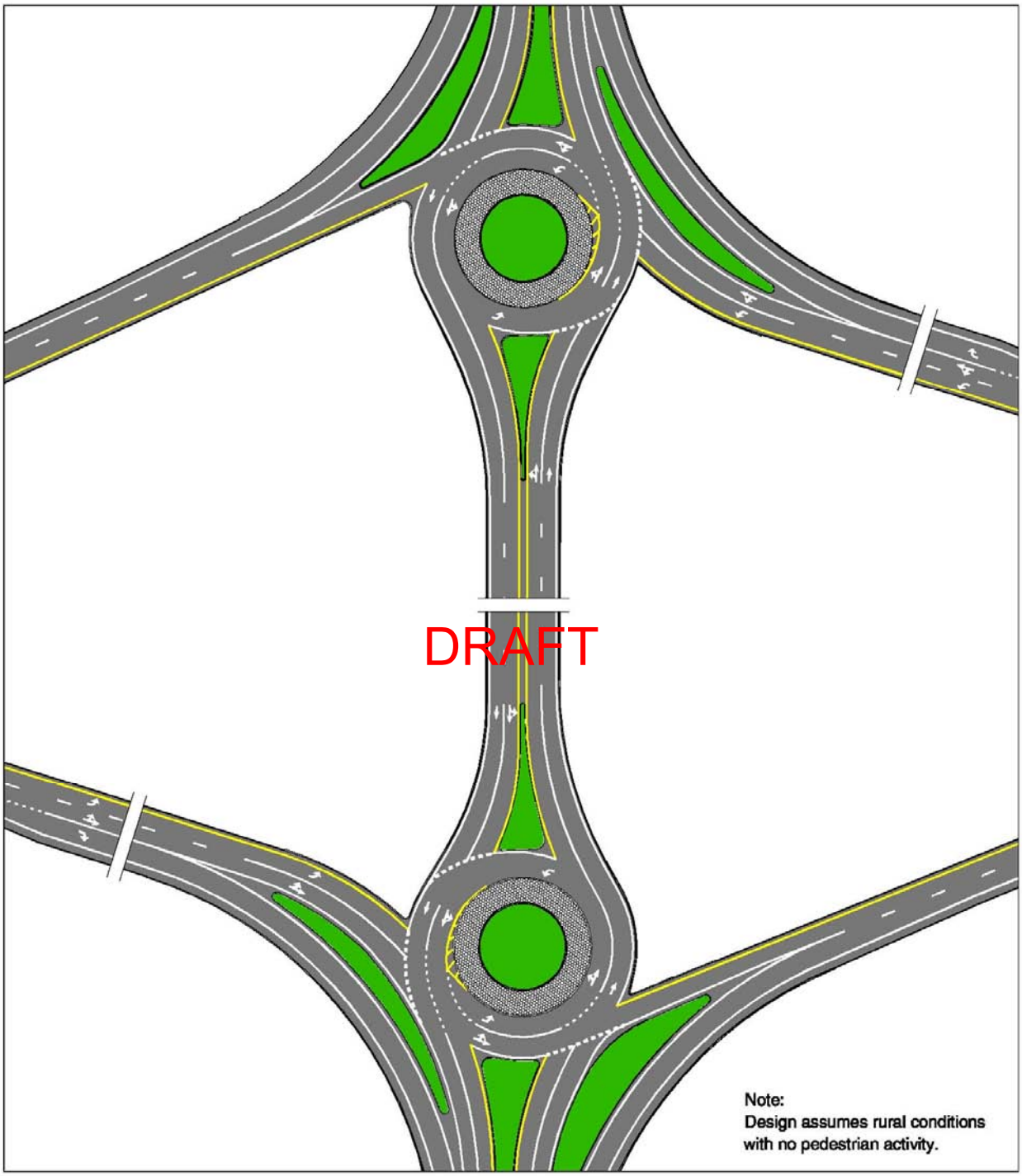
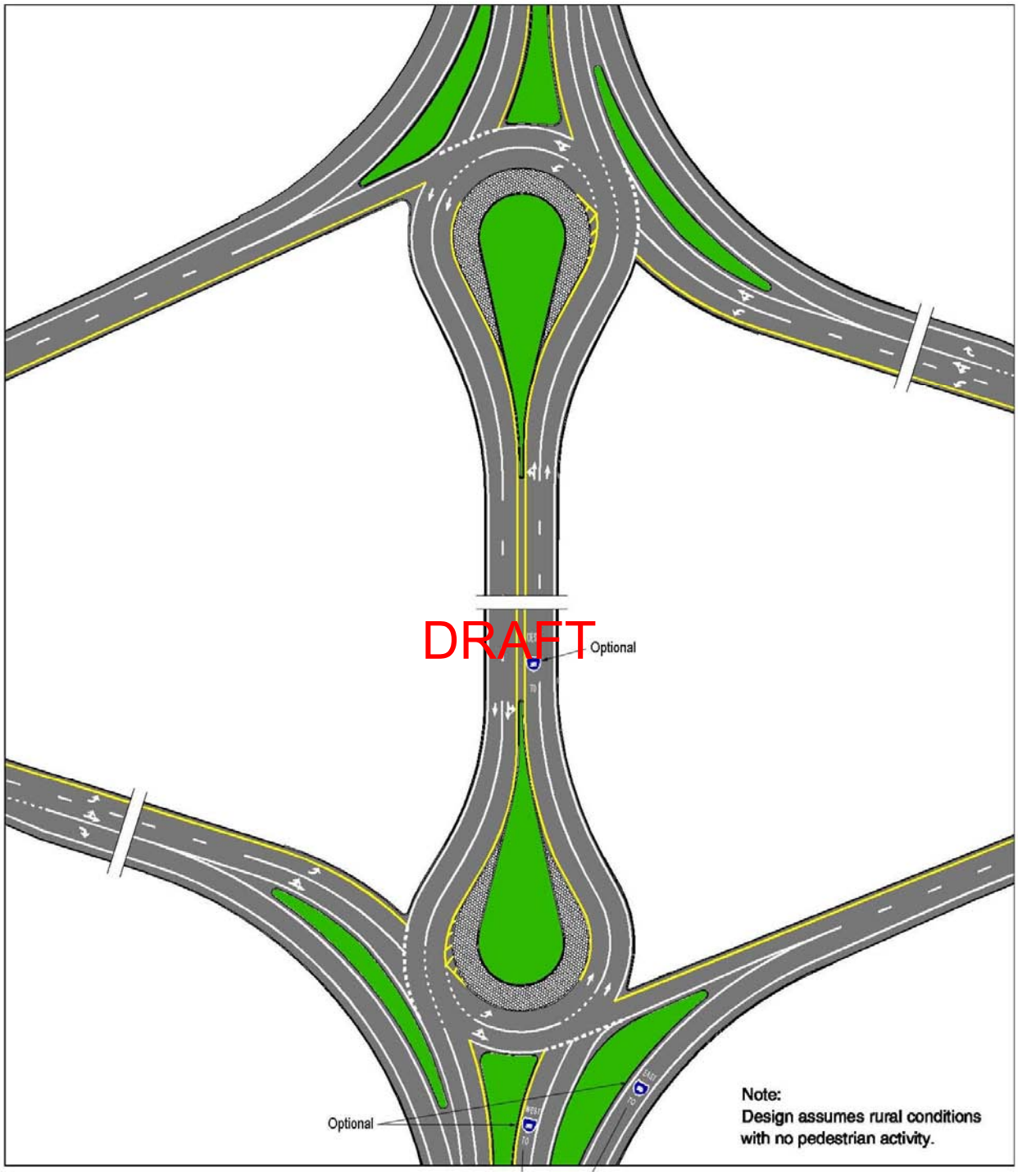


Figure 3H-18. Example of Markings for Diamond Interchange with Two Raindrop-Shaped Roundabout Ramp Terminals



REPLACED TEXT AND FIGURES

The following text and figures from the 2003 MUTCD will be replaced by the new chapter.

Section 3B.24 Markings for Roundabout Intersections

Support:

Roundabout intersections are distinctive circular roadways that have the following three critical characteristics:

A. A requirement to yield at entry which gives a vehicle on the circular roadway the right-of-way;
B. A deflection of the approaching vehicle around the central island; and
C. A flare or widening of the approach to allow for proper operation as needed.

Examples of markings for roundabout intersections are shown in Figures 3B-27 and 3B-28.

Option:

A yellow edge line may be placed around the inner (left) edge of the circular roadway.

Guidance:

A white line should be used on the outer (right) side of the circular roadway as follows: a solid line along the splitter island and a dotted line across the lane(s) entering the roundabout intersection.

Edge line extensions should not be placed across the exits from the circular roadway.

Where crosswalk markings are used, these markings should be located a minimum of 7.6 m (25 ft) upstream from the yield line, or, if none, from the dotted white line.

Option:

Lane lines may be used on the circular roadway if there is more than one lane.

A yield line (see Section 3B.16) may be used to indicate the point behind which vehicles are required to yield at the entrance to a roundabout intersection.

Standard:

Bicycle lane markings shall not be provided on the circular roadway of a roundabout intersection.

Section 3B.25 Markings for Other Circular Intersections

Support:

Other circular intersections include but are not limited to rotaries, traffic circles, and residential traffic calming designs.

Option:

The markings shown in Figures 3B-27 and 3B-28 may be used at other circular intersections when engineering judgment indicates that their presence will benefit drivers or pedestrians.

Figure 3B-27. Examples of Markings for Roundabout Intersections with One-Lane Approaches

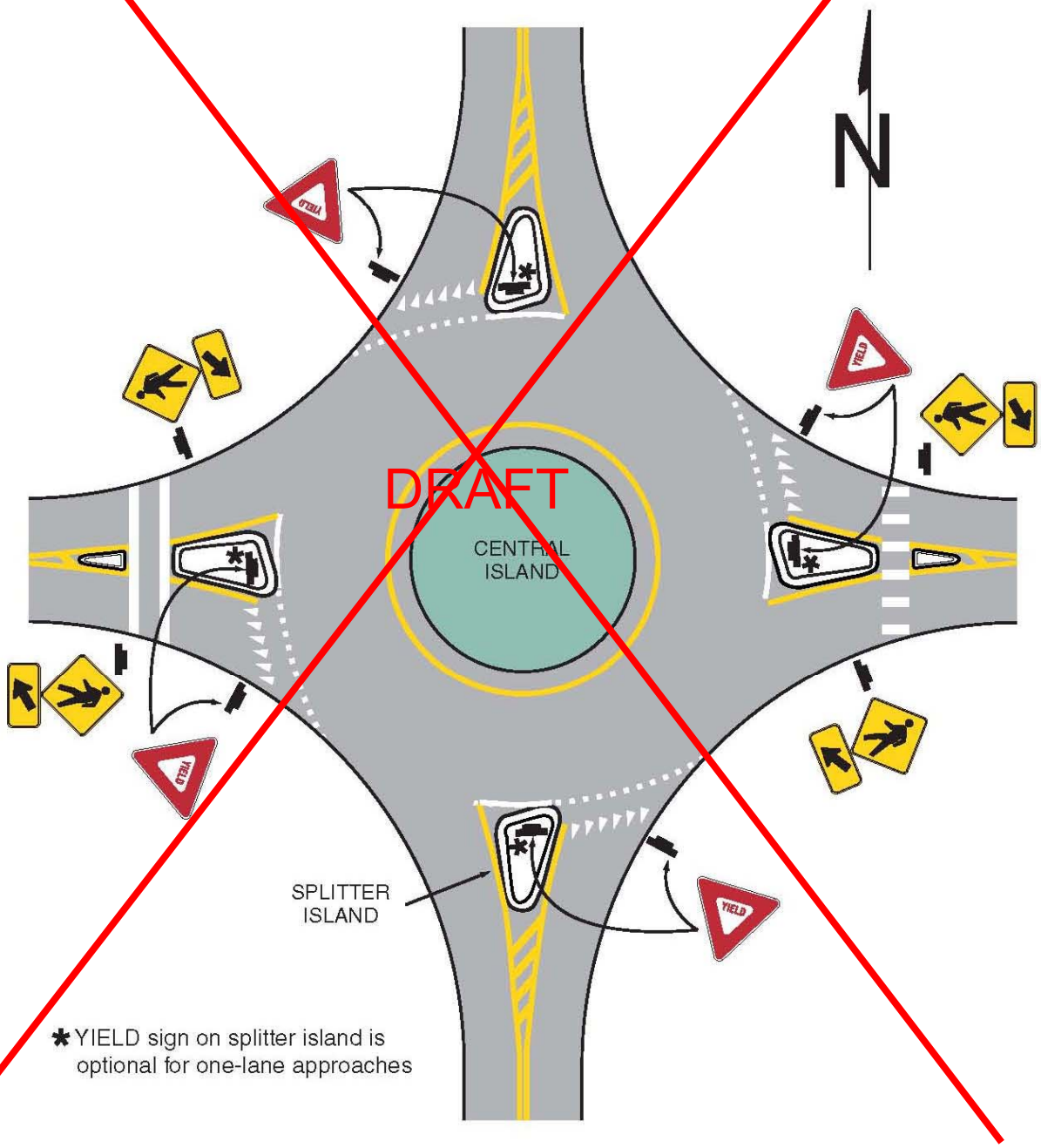


Figure 3B-28. Examples of Markings for Roundabout Intersections with Two-Lane Approaches